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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,701	12/31/2001	Byung-Kyu Lee	030681-352	3883
21839	7590	09/22/2004	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			RICKMAN, HOLLY C	
POST OFFICE BOX 1404			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22313-1404			1773	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/029,701

Applicant(s)

LEE, BYUNG-KYU

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☒ Claim(s) 15,16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The rejection of claims 1-2, 4-6, 9, 12, and 15 under 35 U.S.C. 102(e) as being anticipated by Do et al. (US 6537638) is withdrawn in view of Applicant's arguments.

3. The rejection of claims 1, 3, 5-6 and 8 under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US 5738927) is withdrawn in view of Applicant's amendments.

4. Claims 1-3, 5-6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tang et al. (US 5750270).

Tang et al. disclose a magnetic recording medium having a substrate, a perpendicular orientation promotion layer (NiFe keeper layer) an fcc underlayer formed from Pt or Pd and a perpendicular recording layer thereon. The fcc underlayer has a thickness of 28-56 nm (col. 11, Table 1). The magnetic layer is formed from a CoCrTa alloy.

With respect to the functional language "perpendicular magnetic enhancement" layer and "perpendicular orientation promoting" underlayer set forth in claims 1 and 2, respectively, the

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layers taught by Tang et al. are capable of functioning in the claimed capacity and therefore, meet these functional limitations.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al. (US 5750270) in view of Haratani et al. (US 6420058).

Tang et al. disclose all of the limitations of the claims except for the use of a lubricant layer on top of the disclosed protective layer.

Haratani et al. teach that it is known in the art to deposit a protective layer and a lubricant layer on top of a magnetic recording medium in order to protect the medium surface from contact with the magnetic head (col. 4, lines 48-51).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a lubricant layer to the structure taught by Tang et al. in order to add further protection to the medium surface.

7. The rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5738927) in view of Haratani et al. (US 6420058) is withdrawn in view of Applicant's amendments.

***Allowable Subject Matter***

8. Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Tang et al. fails to teach or suggest the claimed combination of a Ti orientation enhancement layer and a soft magnetic layer between the orientation layer and the substrate or the recording layer.

***Response to Arguments***

9. Applicant's arguments filed 7/7/04 have been fully considered but they are not persuasive with respect to the rejection of the claims under 35 USC 102 and 35 USC 103 in view of Tang et al.

Applicant argues that Tang et al. does not disclose the claimed thickness range of the fcc enhancement layer with sufficient specificity to constitute anticipation under 35 USC 102. The Examiner respectfully disagrees. Tang et al. does disclose a range which overlaps the claimed range. However, the endpoints of the broadly disclosed range and the preferred range are 1000 Å and 500 Å, respectively. These values convert to 100 nm and 50 nm, respectively, and clearly anticipate the claimed range which merely requires that the thickness of the fcc enhancement layer be greater than or equal to 15 nm. Furthermore, the specific examples noted in the last Office action shown in Table 1 clearly anticipated the claimed range.

Applicant argues that there is evidence of unexpected results associated with the claimed range on page 5 of the specification. However, the cited passage on page 5 is merely a statement or allegation of unexpected results without any data or evidence to support that the claimed range produces an unexpected benefit. It is also noted that the claimed “range” has no upper limit. Thus, any showing of unexpected results would have to establish an unexpected benefit for an infinitely large value above 15 nm.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

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September 20, 2004